



SERVOFLEX Micro i.s (5100 i.s)

The SERVOFLEX Micro i.s. (5100 i.s) analyser is a unique method for portable hazardous area analysis. Certified to ATEX Cat 1, FM and IECEx approvals for use in Zone 0 hazardous areas. It has a rubber-overmoulded casing that has been located with stainless steel fibres to prevent potentially hazardous static electricity build ups, and also provides additional physical protection. Long-life rechargeable lithium ion batteries are installed as standard, and an integral electronic note pad enables data to be stored for subsequent analysis.

FEATURES

- Intrinsically safe and Zone 0 hazardous area approved, no purge required
- Non-consumable, reliable and highly accurate sensors for % level O₂, CO and CO₂
- Rugged, robust IP65 construction
- Advanced Li-ion rechargeable batteries as standard
- Optional sampling accessories
- Pumped and non-pumped versions available

APPLICATIONS

- Catalytic regeneration
Decoke cycle
Combustion optimisation
Process monitoring

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KEY FEATURES

Intrinsically safe and Zone 0 hazardous area approvals.

No purge required allowing portable analysis in all hazardous zones.

This unit is safe for calibration without the need for a hot work permit and is a unique and practical option for spot checking.

- Paramagnetic and infrared sensors give reliable, accurate results with low maintenance and running costs
- Suitable for use with flammable and toxic samples
- Rugged, robust IP65 construction
- Intuitive interface developed with customers to ensure desirable functions and ease of use
- Fitted with a carrying strap for ease of use
- Up to 200 measurements can be stored in the analyser memory
- Optional sample conditioning kit available for pumped unit
- Pumped or non pumped (AFCD) options available
- White backlit LCD display
- User configurable, audible, concentration alarms
- Powered by advanced lithium ion rechargeable batteries
- Optional sample probe available
- Optional soft carry case

HAZARDOUS AREA APPROVALS

ATEX:  II 1G, Ex ia IIC T4 (-10°C < Ta < +50°C)
(+14°F < Ta < +122°F)

IECEX: Ex ia IIC T4 (-10°C < Ta < +50°C)
(+14°F < Ta < +122°F)



Class I, Division 1, Group A,B,C,D T4 } Indoor (IP65) Locations
Class I, Zone 0, AExia IIC T4 } (-10°C < Ta < +50°C)
Class I, Zone 0, Exia IIC T4 } (+14°F < Ta < +122°F)

EC DIRECTIVE COMPLIANCE

CE marked and in compliance with the ATEX, EMC and is in the scope of the WEEE Directives

UL approved and CE marked 100-240V / 43-70Hz AC power supply

CERTIFICATION

ATEX: Baseefa 06 ATEX0124
IECEX: IECEX BAS06.0030
USA: FM 3028268
Canada: FM 3028268C

Baseefa 06ATEX0182X *
IECEX BAS060042X
FM 3028268
FM 3028268C

* - special condition for safe operation: maximum inlet pressure 1.8 bar absolute

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SPECIFICATIONS

	O ₂ (standard)	O ₂ (high accuracy)	Infrared: CO and CO ₂
Gas Measured:	O ₂ (standard)	O ₂ (high accuracy)	Infrared: CO and CO ₂
TECHNOLOGY	Magnetodynamic Paramagnetic Sensor		Infrared Sensors
PERFORMANCE:			
Range(s):	0-100% O ₂ **	0-100% O ₂ **	0 - 5% CO 0 - 10%,25%,50%,100% CO ₂
Accuracy (intrinsic error):	±0.1% O ₂	±0.05% O ₂	±2% of FSR
Repeatability:	±0.1% O ₂	±0.01% O ₂	±1% FSR
Linearity:	±0.1% O ₂	±0.01% O ₂	±1% FSR
Decimal places:	1	2	2
Response time(T ₉₀):	<15 seconds	<15 seconds	<15 seconds
Zero drift per week:	±0.4% O ₂	±0.2% O ₂	±4% FSR
Temperature coefficient			
Zero:	±0.2 O ₂ per 10°C (18°F)	±0.2 O ₂ per 10°C (18°F)	±1% FSR* per 10°C (18°F)*
Span:	±0.3 O ₂ per 10°C (18°F)	±0.3 O ₂ per 10°C (18°F)	±5% FSR* per 10°C (18°F)* (exc. 100% CO ₂)
			±8.5% FSR* per 10°C (18°F)* (100% CO ₂ only)
Pressure effect:	Directly proportional to ambient barometric pressure <0.2% reading / mBar change		
PHYSICAL:			
Dimensions (W x D x H):	160mm x 140mm x 185mm (6.3" x 5.5" x 7.3") without protective case 175mm x 160mm x 195mm (6.9" x 6.3" x 7.7") with protective case		
Weight:	1.8 Kg to 2.3 Kg (4.0lbs to 5.1lbs)		
Ingress protection:	IP65		
Operating temperature:	-10°C to +50°C (+14°F to +122°F)		
Storage temperature:	-20°C to +60°C (-4°F to +140°F)		
Alarms:	Two user configurable concentration alarms indicated by an LED, icon display and audible sounder Instrument fault alarm indicated by an LED, icon display and audible sounder		
Power supply:	The instrument must be charged in a safe area using the 100-240V charger supplied Note: The unit is not designed to operate from mains power		
Notepad:	Up to 200 measurement points can be stored in the analyser memory for later viewing		
Effect of tilt (per 15°):	± 0.15% O ₂	± 0.15% O ₂	± 1% FSR
Typical battery life:	10 hours at 20°C		
Display:	White backlit LCD		
Operating altitude range:	-500 to 2000 metres		

Written and verified in accordance with:

BS EN 61207-1 1994

BS EN 61207-3 2002

* in the range 5 to 45°C (41 to 113 °F)

** Note: Samples in excess of 21% should not be measured in a hazardous area, for further information please contact your local Servomex office

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SAMPLES

Clean, dry at ambient temperature and free from particulates <0.6µm

(conditioning accessories are available to prepare sample where required)

Sample inlet connection: 5mm OD stub with QuickConnect barb fitting for 5mm (¼") ID tube

Sample outlet connection: 5mm OD stub (sample and bypass)

Optional connector: Quickconnect fitting to an ⅛" NPT threaded fitting

Inlet pressure:	<u>5110 Pumped</u>	<u>5111 AFCD (Pressure Driven)</u>
	minimum 80kPa absolute (11.6psia)	6.9kPa gauge (1psig)
	maximum 110kPa absolute (16.0psia)	69kPa gauge (10psig)
	typically ±3.4kPa gauge (±0.5psig) at 700ml/min nominal	

OXYGEN ENRICHED SAMPLES AND PRESURE INFORMATION FOR HAZARDOUS AREAS

Outside Atmosphere	Sample Gas			
	Type	Oxygen	Pressure	Permitted
Flammable ≤21% oxygen 11.6 - 16.0psia (80 - 110kPa abs)	Non-Flammable 5110 Pumped	≤21% oxygen	≤16psia (≤110kPa abs)	YES
	Flammable 5110 Pumped	≤21% oxygen	≤16psia (≤110kPa abs)	YES
	Non-Flammable 5110 Pumped	≤21% oxygen	>16psia (>110kPa abs)	NO
	Flammable 5110 Pumped	≤21% oxygen	>16psia (>110kPa abs)	NO
	All	≥21% oxygen		NO
	Non-Flammable 5111 AFCD	≤21% oxygen	≤26psia (≤180kPa abs)	YES
	Flammable 5111 AFCD	≤21% oxygen	≤26psia (≤180kPa abs)	YES

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MATERIALS IN CONTACT WITH SAMPLE AND CALIBRATION GASES

	Common Gas Path	Standard and High Accuracy Oxygen Sensor	Infrared Sensor	Optional Gas Probe	Sample Conditioning Kit
302 Stainless steel	✓				
316 Stainless steel		✓	✓	✓	✓
Borosilicate glass	✓	✓		✓	
Epoxy adhesive (EPO-TEK H72)			✓		
Electroless nickel		✓			
Fibre glass					✓
Fluorocarbon elastomer (FPM)					✓
Gold			✓		
Kynar ® (PVDF: polyvinylidene disulphide)	✓				
Nickel	✓		✓	✓	✓
Nitrile					✓
Nylon				✓	
PPS (polyphenylene sulphide) with carbon fibre filler	✓				
PPS (polyphenylene sulphide)	✓				
Perspex					✓
Platinum		✓			
Platinum/iridium alloy		✓			
Polysulphone	✓				
Polyurethane				✓	
PVC (polyvinylchloride)				✓	✓
Ruby (restrictor)	✓	✓	✓		
Sapphire			✓		
Silica					✓
Viton ®	✓	✓	✓	✓	✓

BATTERY RUNNING TIMES (HOURS)

	Li-Ion (O ₂) 5110 Pumped	Li-Ion (IR) 5110 Pumped	Li-Ion (O ₂) 5111 AFCD	Li-Ion (IR) 5111 AFCD
50 °C	16.5	10.5	18.0	11.4
20 °C	14.8	9.7	18.0	11.4
-5 °C	10.5	7.4		
-10 °C	9.7	7		9.0

Pump duty cycle = 5 mins ON / 5 mins OFF

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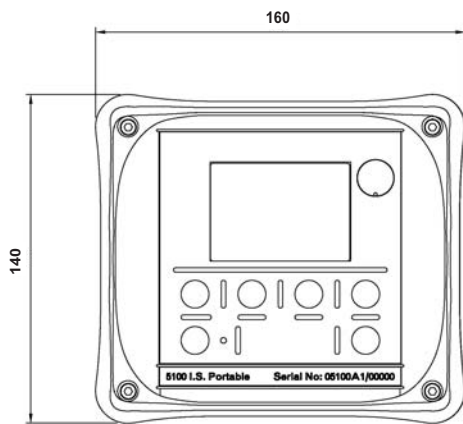
OPTIONS AND ACCESSORIES

Additional barb fittings for simple zero and span gas connections
 Sampling probes
 2 years spares (includes replacement filters and 'O' rings)
 Black canvas carrying case
 Transport case (for use in a safe area only)

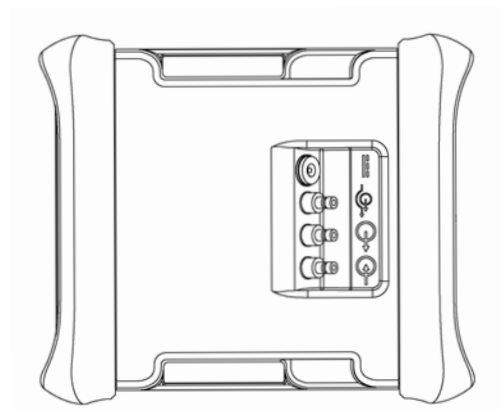
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DIMENSIONS

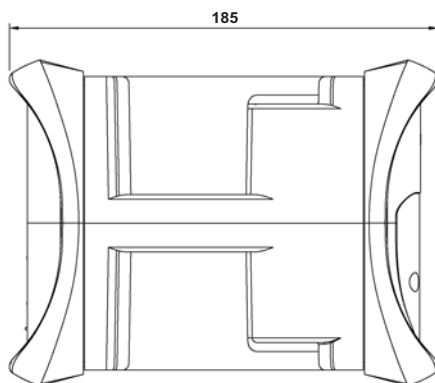
DIMENSIONS SHOWN IN MILLIMETRES



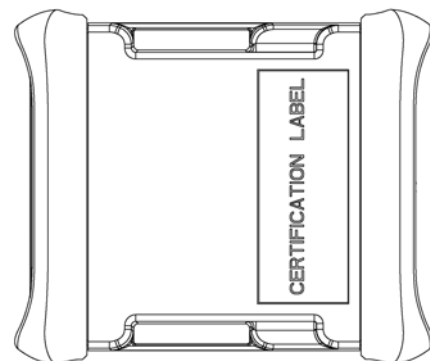
TOP



FRONT



SIDE



BACK

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SERVICE & SUPPORT

For new installations and replacement of older Servomex and competitor products, we will work with you to develop a bespoke service and support package, ensuring full measurement availability and plant operation within your timescales and budget.

SERVOSPARES

To ensure the integrity and optimum performance of your Servomex product, we recommend fitting only factory authorised spare parts. This is particularly important for all hazardous area certified products.

SERVOSURE

Ensure your Servomex analyser is properly commissioned and delivers optimum performance with a maintenance contract, service programme and extended warranty.













SERVOTECH

Make the most of your Servomex gas analyser by attending a training course at one of our training centres in Europe, USA or Asia or on your own site.

SERVOHELP

Whether you have a simple question or complex process challenge, our local offices and global support network are here to help you.

PRODUCT RANGE

	 SERVOMEX EMISSIONS ANALYSERS	 SERVOMEX COMBUSTION ANALYSERS	 SERVOMEX PROCESS ANALYSERS
SERVOTOUGH (Hazardous Area)	 SERVOTOUGH 2500 - SERVOTOUGH SpectraExact 2900 - SERVOTOUGH Laser	 SERVOTOUGH 2700 - SERVOTOUGH Fluegas 2500 - SERVOTOUGH SpectraExact	 SERVOTOUGH 1900 Digital - SERVOTOUGH Oxy 1900 IR - SERVOTOUGH Spectra 2200 - SERVOTOUGH OxyExact 2500 - SERVOTOUGH SpectraExact 2900 - SERVOTOUGH Laser 1800 - 1800
SERVOPRO (Safe Area)	 SERVOPRO 4900 - 4900 1440 - 1440	 SERVOPRO	 SERVOPRO 1800 - 1800 5400 - SERVOPRO MultiExact 4100 - 4100 4200 - 4200 1440 - 1440 k1000 - SERVOPRO FID k2001 - SERVOPRO Plasma k2002 - SERVOPRO PlasmaExact k4000 - SERVOPRO Chroma
SERVOFLEX (Portables)	 SERVOFLEX 5200 Multipurpose - SERVOFLEX MiniMP	 SERVOFLEX 5100 i.s - SERVOFLEX Micro i.s 5200 Multipurpose - SERVOFLEX MiniMP	 SERVOFLEX 5100 i.s - SERVOFLEX Micro i.s 5100 Marine - SERVOFLEX MicroMarine 5200 Transfill - SERVOFLEX MiniTransfill 5200 Multipurpose - SERVOFLEX MiniMP 5200 HD - SERVOFLEX MiniHD 5200 Food Pack - SERVOFLEX MiniFoodPack

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